

AMENDMENTS TO THE CLAIMS

1. (currently amended) A shape memory polymeric material ~~characterized by a T_g exceeding room temperature whose rubber modulus and elasticity are derived substantially from physical crosslinks comprising a blend of a crystalline polymer selected from the group consisting of poly(vinylidene fluoride), polyglycolides, polylactide and copolymers thereof, poly(hydroxybutyrate), poly(ethylene glycol), polyethylene, polyethylene-co-vinyl acetate, poly(vinyl chloride), poly(vinylidene chloride) and copolymers of poly(vinylidene chloride) and poly(vinyl chloride) with an amorphous polymer selected from the group consisting of poly(vinyl acetate), poly(methyl acrylate), poly(ethyl acrylate), and atactic poly(methyl methacrylate); isotactic poly(methyl methacrylate) and syndiotactic poly(methyl methacrylate);~~

wherein the shape memory polymeric material has

a melting temperature, T_m , and

a glass transition temperature, T_g , exceeding room temperature; and

wherein the shape memory polymeric material has rubber modulus and elasticity derived substantially from physical crosslinks formed by annealing the blend at a temperature greater than T_g and less than T_m .

2. (original) A shape memory polymeric material according to claim 1 wherein said blend is of amorphous poly(vinyl acetate) and semicrystalline polylactide.

3. (original) A shape memory polymeric material according to claim 1 wherein said blend is of amorphous polyvinyl acetate and crystalline poly(vinylidene fluoride).

4. (original) A shape memory polymeric material according to claim 1 wherein said blend is of crystalline poly(vinylidene fluoride) and amorphous poly(methyl methacrylate).

5. (original) A shape memory polymeric material according to claim 1 wherein said blend is of crystalline poly(vinylidene chloride) and amorphous poly(vinyl acetate).

6-10. (canceled)

11. (currently amended) An impression material for molding, duplication, rapid prototyping and dentistry prepared from a shape memory ~~polymer according to claim 1~~ polymeric material comprising a blend of a crystalline polymer selected from the group consisting of poly(vinylidene fluoride), polyglycolides, polylactide and copolymers thereof, poly(hydroxybutyrate), poly(ethylene glycol), polyethylene, polyethylene-co-vinyl acetate, poly(vinyl chloride), poly(vinylidene chloride) and copolymers of poly(vinylidene chloride) and poly(vinyl chloride) with an amorphous polymer selected from the group consisting of poly(vinyl acetate), poly(methyl acrylate), poly(ethyl acrylate), and atactic poly(methyl methacrylate);

wherein the shape memory polymeric material has

a melting temperature, T_m , and

a glass transition temperature, T_g , exceeding room temperature; and

wherein the shape memory polymeric material has rubber modulus and elasticity derived substantially from physical crosslinks formed by annealing the blend at a temperature greater than T_g and less than T_m .

12. (currently amended) A temperature sensor prepared from a shape memory ~~polymer according to claim 1~~ polymeric material characterized by a T_g exceeding room temperature whose rubber modulus and elasticity are derived substantially from physical crosslinks comprising a blend of a crystalline polymer selected from the group consisting of poly(vinylidene fluoride), polyglycolides, polylactide and copolymers thereof, poly(hydroxybutyrate), poly(ethylene glycol), polyethylene, polyethylene-co-vinyl acetate, poly(vinyl chloride), poly(vinylidene chloride) and copolymers of poly(vinylidene chloride) and poly(vinyl chloride) with an amorphous polymer selected

from the group consisting of poly(vinyl acetate), poly(methyl acrylate), poly(ethyl acrylate), and atactic poly(methyl methacrylate)

wherein the shape memory polymeric material has

a melting temperature, T_m , and

a glass transition temperature, T_g , exceeding room temperature; and

wherein the shape memory polymeric material has rubber modulus and elasticity derived substantially from physical crosslinks formed by annealing the blend at a temperature greater than T_g and less than T_m .

13. (currently amended) A heat sensitive seal prepared from a shape memory polymer according to claim 1 polymeric material characterized by a T_g exceeding room temperature whose rubber modulus and elasticity are derived substantially from physical crosslinks comprising a blend of a crystalline polymer selected from the group consisting of poly(vinylidene fluoride), polyglycolides, polylactide and copolymers thereof, poly(hydroxybutyrate), poly(ethylene glycol), polyethylene, polyethylene-co-vinyl acetate, poly(vinyl chloride), poly(vinylidene chloride) and copolymers of poly(vinylidene chloride) and poly(vinyl chloride) with an amorphous polymer selected from the group consisting of poly(vinyl acetate), poly(methyl acrylate), poly(ethyl acrylate), and atactic poly(methyl methacrylate);

wherein the shape memory polymeric material has

a melting temperature, T_m , and

a glass transition temperature, T_g , exceeding room temperature; and

wherein the shape memory polymeric material has rubber modulus and elasticity derived substantially from physical crosslinks formed by annealing the blend at a temperature greater than T_g and less than T_m .

14. (currently amended) A large strain, large force actuator prepared from a shape memory ~~polymer according to claim 1~~ polymeric material characterized by a T_g exceeding room temperature whose rubber modulus and elasticity are derived substantially from physical crosslinks comprising a blend of a crystalline polymer selected from the group consisting of poly(vinylidene fluoride), polyglycolides, polylactide and copolymers thereof, poly(hydroxybutyrate), poly(ethylene glycol), polyethylene, polyethylene-co-vinyl acetate, poly(vinyl chloride), poly(vinylidene chloride) and copolymers of poly(vinylidene chloride) and poly(vinyl chloride) with an amorphous polymer selected from the group consisting of poly(vinyl acetate), poly(methyl acrylate), poly(ethyl acrylate), and atactic poly(methyl methacrylate);

wherein the shape memory polymeric material has

a melting temperature, T_m , and

a glass transition temperature, T_g , exceeding room temperature; and

wherein the shape memory polymeric material has rubber modulus and elasticity derived substantially from physical crosslinks formed by annealing the blend at a temperature greater than T_g and less than T_m .

15. (currently amended) A shape memory polymeric material according to claim 1 wherein the crystalline polymer is a polylactide ~~copolymers are selected from the group consisting of poly(D,L-lactide), poly(lactide-co-glycolide), poly(lactide-co-caprolactone), poly(lactide-co-1,5-dioxepan-2-one), and poly(lactide-co-trimethylene carbonate).~~

16. (previously presented) A shape memory polymeric material according to claim 1, further comprising a plasticizer, particulate material, or a combination thereof.

17-18. (canceled)

19. (new) A shape memory polymeric material according to claim 1 wherein the annealing is conducted at a temperature and for a time effective to produce equilibrium crystallinity.